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㉙ **Liquid seasoning composition.**

㉚ A homogenous liquid condiment composition which is prepared from (1) tartaric acid esters of mono and diglycerides, (2) an edible fat or oil or mixture thereof, wherein such fat or oil is miscible in (1), and (3) one or more condiments selected from edible flavorings and edible colorings. However, when one such condiment is oleoresin black pepper, benzyl alcohol is present in a weight ratio of benzyl alcohol to oleoresin black pepper of at least 2:3. The composition is useful in flavoring or coloring foods and beverages and is dispersible in both oil and water.

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LIQUID SEASONING COMPOSITIONS

This invention refers to:

Liquid condimental compositions comprising edible flavorings and/or edible colorings; seasoning, flavoring, or coloring of foods and beverages using liquid spice flavorings and colorings; foods and beverages so flavored, seasoned, or colored.

The seasoning or flavoring, e.g., spicing, of foods has been accomplished in the following manner:

5       a. Ground Spices. This has been the traditional  
approach, and is still used as the primary method  
in the home kitchen. In more advanced technological  
applications, such as commercial food processing,  
10       it has been replaced by employment of spice oleoresins,  
which offer cleanliness and uniformity.

b. Oleoresins have traditionally been used in  
the following forms:

15       1. Directly. Oleoresin paprika, for example,  
is mixed with salad oil, and added to vinegar to  
make a separating salad dressing.

20       2. As dispersions on salt or dextrose. In the  
case of a French dressing, black pepper oleoresin  
may be dispersed on salt and added to the vinegar  
with agitation in the presence of the oil and pap-  
rika oleoresin mixture. The black pepper oleoresin  
25       will, for the most part, be dissolved into the oil  
phase if agitation is sufficient.

3. Black pepper oleoresin may alternatively be  
added to the food in a liquid form, according to:

30       .i. U.S. Pat. Nos. 2,680,690 and 2,626,218 (Johnson  
and Schumm), wherein the oleoresin black pepper is  
claimed to be dissolved in anhydrous organic acids,  
such as lactic. This approach suffers from three  
disadvantages in practice: (1) Not all of the pepper  
35       essential oil is soluble, and two-phase systems result

5        which cannot be evenly incorporated into the food.  
Flavor variation results. (2) The liquid pepper  
is not readily dispersible in oil phase systems.

10        ii. U.S. Pat. No. 2,860,054 (Yanick) utilizes  
less organic acid than the above, and substitutes  
therefor ethyl alcohol and an acetate moiety. This  
invention has the advantage over the Johnson Schumm  
developments in contributing less acidity to the  
15        food, but shares their other disadvantages, and in  
addition may change in composition due to evaporation  
of alcohol.

20        iii. U.S. Pat. No. 3,464,831 (Ziegler) discloses  
a method of making a liquid black pepper extract  
from a liquid black pepper oleoresin by separating  
the oleoresin into a liquid oil fraction and a solid  
fraction by applying a physical force to the oleoresin,  
such that the said liquid oil fraction contains liquid  
volatile oil, liquid non-volatile oil and dissolved  
25        piperine, and the solid fraction consists essentially  
of at least 60% by weight piperine. The liquid oil  
fraction constitutes the liquid pepper extract of  
the invention.

30        iv. U.S. Pat. No. 3,906,116 (Quesnel et al),  
discloses a method for preparing an aqueous emulsion  
of pepper oleoresin by forming an oleoresin solution  
or colloidal solution of the pepper oleoresin in  
a diluent. There is then admixed with the solution  
35        under agitation conditions a preformed mixture of  
an emulsion stabilizer, at least one of an edible  
or essential oil and then adding thereto an aqueous

5 solution or dispersion of an emulsion stabilizer  
to form a final mixture. Thereafter the final mixture  
is emulsified.

10 v. U.S. Pat. No. 4,284,657 (Stanton) describes  
an aqueous based fluidized oleoresin composition  
which contains 10 to 20 percent by weight of a natural  
oleoresin from about 10 to 20 percent by weight of  
a surfactant, from about 0.25 to 2 percent by weight  
of an edible hydrophilic gum, from about 0.025 to  
15 1 percent by weight of phosphoric acid and at least  
about 60% by weight of water. The disadvantages  
of this composition include at least the following:  
(1) the high water content limits its oil dispersibility;  
(2) The composition has to be preserved against microbial  
20 growth; (3) the piperine content crystallizes on  
storage and requires dissolution, with heat and/or  
agitation, in the finished food product. To be completely  
utilized by human taste buds, the piperine must be  
completely dissolved in the ultimate food to which  
25 it has been added.

vi. U.S. Pat. No. 4,285,981 to Todd et al discloses  
a homogeneous liquid condimental composition which  
is dispersible in both oil and water, and consists  
30 essentially of lecithin, tartaric esters of mono-  
and diglycerides and, in one embodiment oleoresin  
black pepper. Disadvantages of this composition  
include: (1) limited dispersibility in water; and  
(2) lack of heat stability upon dispersion in an  
35 aqueous system.

4. Oleoresins may be mixed with Polysorbate 80  
USP in an amount sufficient to dissolve them and

5 to emulsify them in aqueous systems (generally the  
amount is more than 200% by weight of the oleoresin),  
and added to the aqueous phase of the system. These  
mixtures cannot be added to the oil phase. In addition,  
10 Polysorbate 80, even in trace amounts, will break  
the emulsions present in naturally-emulsified systems,  
such as mayonnaise. The Polysorbate itself has objection-  
able flavors, may contain a toxic substance known  
as 1,4-dioxane, and often it accelerates the development  
of rancid and other off-flavors.

15  
5. The oleoresins may be spray-dried, using gums,  
and added to the food after mixing with sugar, starch,  
or water. Spray-dried products have great stability,  
but are expensive to produce, cannot be made from  
20 some oleoresins, and a significant portion of the  
volatile flavor is lost in the spray-drying process.

It is apparent from the foregoing that improved,  
economic, efficient, and more universally utilizable  
25 food and beverage flavoring, seasoning, and/or coloring  
systems, which are not characterized by inherent  
shortcomings and deficiencies of available prior  
art systems, would be highly desirable and would  
fulfill a long-felt need in the art. Such systems  
30 are provided by the present invention.

The primary object of this invention is to provide  
35 a condimental system which is dispersible in both  
oil and water phases of a food or beverage. A second  
objective of this invention is to provide a single

5 formulation which is compatible with spice oleoresins,  
essential oils, and natural and synthetic flavorings  
and colorings used in foods, beverages, or in other  
applications where humans or animals require non-toxic  
dispersing agents in the substances ingested or exposed  
10 to the oral cavity. A third objective of this invention  
is to overcome the deficiencies in the prior art  
related to the use of oleoresin black pepper, and  
at the same time make the water and oil dispersible  
black pepper flavoring composition compatible with  
15 other water and oil dispersible spice flavoring com-  
positions, essential oils, and food colorings. A  
fourth objective is to provide a condimental system  
which has no functional effect in the food other  
than the dispersion of the condiment at the time  
20 of incorporation and which, for example, does not  
affect the usual or natural emulsions or particle  
aggregation in the food. A fifth objective is to  
provide a condimental system which is compatible  
with the various additives found in commercial oleo-  
25 resins, such as lactic acid, mono and di-glycerides,  
and vegetable oils. A sixth objective is to provide  
a single system which will distribute flavorings  
or coloring between the water and oil phases of a  
food, depending upon the affinity of the flavor or  
30 coloring for the oil or water phase. A seventh objec-  
tive is to provide a single system which will serve  
to flavor and color juices and beverages, especially  
those in which pulp or a cloud is present. An eighth  
objective is to provide a condimental system which  
35 has improved heat stability after dispersion in an  
aqueous system.

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5 Additional objectives are:

To provide a liquid flavoring system which is compatible with all spice and herb oleoresins and essential oils. To provide a spice flavoring system in which any desirable mixture of flavors can be added to  
10 the food or beverage as a single liquid. To provide a liquid flavor which will not precipitate, separate, or stratify on standing and shipping. To provide a flavoring system which will not contribute off-flavors to the food because of its ingredients, or because  
15 its ingredients are pro-oxidants. To provide a flavoring system which can be added to the oil phase, the water phase, or both phases simultaneously in the preparation of the food or beverage. To provide a flavoring system which can be used in conjunction with special  
20 applications, such as in conjunction with the coloring of pickles covered with a flavored salt brine or sugar syrup. To provide a flavoring and coloring system which is not dependent upon the pH of the food or beverage. To provide a liquid flavoring  
25 system which is more economical than those presently in use. Still other objects will be apparent to one skilled in the art and additional objects will become apparent hereinafter.

30 All of the foregoing and additional objects are achieved by the provision of the flavoring, seasoning, or coloring compositions of the present invention and the foods and beverages flavored, seasoned, or colored therewith.

35



## GLOSSARY OF TERMS

5       The following identification of terms will allow  
the reader to better understand the specific technical  
aspects of this invention:

## Spices and Herbs

10

Aromatic and/or colored edible vegetable substances,  
the significant function of which is seasoning food.  
These are edible flavors or seasonings.

## Oleoresin

15

Spice oleoresins are derived from spices and contain  
the sapid, odorous, and related characterizing principles  
of the spice. They are produced by the solvent extrac-  
20       tion of a ground spice, with subsequent solvent removal  
and occasionally purifying steps to remove unwanted  
components, such as waxes and chlorophyll. Also  
an edible flavor or seasoning.

## Essential Oil

25

The volatile oil obtained from the plants (spices  
and herbs). This oil usually has the characteristic  
(essential) odor and flavor of the spice. It is  
30       most commonly steam distilled from the spice. Another  
edible flavor or seasoning.

## Condiment

35

A substance, or mixture of substances, the effect  
of which in a food or beverage is seasoning, flavoring

5 and/or coloring, and which is soluble in a solvent  
or volatile with steam. Encompasses edible flavors  
or seasonings and edible colorings.

#### Brine and Syrup

10

Water or vinegar containing one percent or more  
salt and/or sugar (weight per volume) as commonly  
used in pickles and beverages and less frequently  
in other food applications.

15

#### Tartaric Acid Esters of Mono- and diglycerides

20 Obtained by esterification reaction of tartaric  
acid, acetic acid and citric acid, with a distilled  
monoglyceride, commonly referred to as diacetyl esters  
and widely used as a dough conditioner. Usually  
contains one or more acetate moieties in addition  
to the tartarate moiety, although this is not essential.  
Usually some very small percentage of triglyceride  
25 is also present. Hereinafter sometimes abbreviated  
"tartaric acid esters".

#### "w/o Flavor"

30 An abbreviation for "water and oil dispersible  
flavor" used herein to designate a water and oil  
dispersible condimental liquid system which is an  
object of our invention, described in the speci-  
fication and examples, and claimed in the claims  
35 hereof.

5

**"Consisting Essentially of"**

According to established practice, this phrase means that the necessary stated ingredients are present in the necessary stated amounts, but that the presence of other ingredients or additaments which do not interfere with attainment of the objectives of the invention is not precluded. In this sense, it is to be noted that diluting and/or standardizing agents, such as propylene glycol, lactic acid, ethanol, mono- and diglycerides and esters thereof, lecithin, sorbitan fatty acid esters, etc., are not excluded to the extent that they do not interfere with attainment of the objectives of the invention.

20

**Foods and beverages**

The usual solid or liquid foods and the usual beverages including juices, as well as candies, gums, sweetmeats, medicines, including mouthwashes and gargles, and like ingestible or orally-acceptable materials, including all other types of drinkables and chewables.

25

**Edible Colorings**

Any pigment or other coloring which is ingestible or orally acceptable and which, like all flavorings or seasonings, are preferably but not necessarily "generally recognized as safe" (GRAS). Many are disclosed hereinafter.

35

H O D O O

5

**Edible Fats and Oils**

Edible fats and oils usually originate from animal and plant sources. Those of animal origin include those from milkfat and animal depot fats. Those of plant origin include the lauric acids, the oleic-linoleic and the linoleic fats and oils. Edible fats and oils include, but are not limited to, the following: almond oil, butter fat, cocoa butter, coconut oil, corn oil, cottonseed oil, lard, lard oil, olive oil, palm oil, peanut oil, safflower oil, sesame oil, soybean oil, sunflower oil and tallow. As used herein the terms fat or oil are used interchangeably.

20

**Materials Employed**

Diacetyl tartaric acid esters of monoglycerides -Usually Grinsted Products, Inc., Panodan SD (TM) brand. Panodon FD (TM) and Panodon 234 (TM) and Eastman Chemical Products, Inc. Myvatem (TM) brand are also suitable. All conform to Food Chemical Codex III, p. 98-99.

Cottonseed Oil - Welch, Holme & Clark, Inc.  
Soybean Oil - Welch, Holme & Clark, Inc.  
Coconut Fat - Welch, Holme & Clark, Inc.  
Lard - Armour, Inc.  
Butter - Land O'Lakes, Inc.  
Propylene glycol alginate - Kelcoloid S(TM), Merck & Co., Inc.

35

5

The present invention relates to a homogenous liquid condimental composition consisting essentially of (1) tartaric and esters of mono and diglyceride; (2) an edible fat or oil or mixtures thereof, wherein such edible fat or oil is miscible in (1); and preferably in addition (3) one or more condiments selected from edible flavorings and edible colorings, when one such condiment is oleoresin black pepper, benzyl alcohol is present in a weight ratio of benzyl alcohol to oleoresin black pepper of at least 2:3. The ratio by weight of (1) plus (2) to (3) is at least about 1:9, preferably between about 1:9 to about 99:1, more preferably between about 1:9 to about 9:1, and most preferably between about 3:7 to about 7:3. The ratio by weight of (1) to (2) is preferably between about 1:4 to about 4:1, more preferably between about 2:3 to about 3:2, and most preferably 1:1. When one such condiment is oleoresin black pepper, benzyl alcohol is present in a weight ratio of benzyl alcohol to oleoresin black pepper of at least 2:3, preferably between about 2:3 and about 9:1, more preferably between about 9:11 and about 11:9, and most preferably about 1:1. The condiment portion (3) should comprise at least one condiment from the group consisting of (a) spice oleoresins, (b) essential oils, and (c) edible colorings. It is preferable that ingredients (1), (2) and (3) be present in a weight ratio of about 1:1:0.5, respectively. The present invention

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5 further relates to foods or beverages seasoned, flavored or colored with the condimental composition.

10 Although the weight ratio of (1) and (2) combined  
to condiment (3) in the composition is at least 1:9,  
preferably between about 1:9 and about 99:1, more  
preferably between about 1:9 to about 9:1, and most  
15 preferably between about 3:7 to about 7:3, and the  
weight ratio of (1) to (2) is preferably between  
about 2:3 to about 3:2, and most preferably about  
1:1, the upper and lower limits can vary substantially  
depending on the results desired by simple experimenta-  
20 tion. Similarly, when one of the condiments is oleoresin  
black pepper, the weight ratio of benzyl alcohol  
to oleoresin black pepper is at least 2:3, preferably  
between about 2:3 and about 3:2, more preferably  
between about 9:11 and about 11:9, and most pre-  
25 ferably about 1:1, the upper and lower limits can  
vary substantially depending on the results desired  
by simple experimentation. By varying the ratios,  
one can alter the dispersibility of the seasoning  
composition, the cost of the product and the physical  
30 properties of the seasoning composition, i.e. liquid  
versus solid. Notwithstanding the above variations,  
the various ratios depend upon the compatibility  
of the particular dispersing system and the condiment  
portion.

5        Although it is the primary intent of this invention  
to provide a liquid condimental composition useful  
in flavoring or coloring foods and beverages and  
which is dispersible in both oil and water, it is  
readily apparent that such a condimental composition  
10       may, under certain conditions and weight ratios of  
components, be a solid. Such a solid condimental  
composition is intended to be within the scope of  
the invention, if it is useful in flavoring or coloring  
foods and beverages and is dispersible in both oil  
15       and water.

20       The following examples are given by way of illustration only and are not to be construed as limiting.  
As used in these examples, the term oleoresin black pepper denotes a mixture of oleoresin black pepper and benzyl alcohol in a 50:50 weight ratio.

Example A. Vegetable Oil and tartaric acid esters  
25       A mixture of 25% vegetable\* oil, 25% tartaric acid esters,\*\* and 50% oleoresin paprika was prepared by mixing at room temperature until homogenous.  
One gram of the mixture was added to 100cc water in a 100cc graduated cylinder and shaken. The mixture  
30       was fully dispersed within 1 minute. Upon standing, the color slowly floats out. The mixture is readily dispersible in oil.

35       \*\*Panodan SD(TM), whenever asterisked herein  
\*Cottonseed oil, whenever asterisked herein.

5        EXAMPLE B. Use of the above dispersing agents,  
singly.

When the oleoresin, e.g. oleoresin paprika, is warmed to effect solution in tartaric acid esters\*\*, it will not disperse satisfactorily in water. This  
10       is also the case with mixtures of oleoresin and edible fats or oils.

EXAMPLE C. Use of the above dispersing agents,  
singly.  
15       When oleoresin black pepper and tartaric acid esters\*\* are combined in a 1:1 weight ratio with heating to effect solution, the resultant mixture will not disperse satisfactorily in water. When oleoresin black pepper and vegetable oil\* are combined in a 1:1 weight ratio  
20       with heating to effect solution, the resultant mixture will not disperse satisfactorily in water.

EXAMPLE D. Ratios of vegetable oil to tartaric acid esters of mono- and diglycerides  
25       In this experiment, vegetable oil\* and tartaric acid ester\*\* were combined in varying ratios in a 9:1 ratio with oleoresin paprika, oleoresin cinnamon and a basil mixture comprising basil oil and oleoresin basil.

30       The dispersibility of each mixture was observed, as well as the tendency to "float out" upon standing for 24 hours. Additionally, the redispersibility

35



5 of the condimental composition was tested after "float out". The mixtures were prepared and tested according to the procedure in Example A. The results are summarized in Table A.

10 EXAMPLE E. Ratios of vegetable oil to tartaric acid esters of mono- and diglycerides.

In this experiment, vegetable oil\* and tartaric acid ester\*\* were combined in varying ratios in a 9:1 ratio with oleoresin black pepper.

15 The dispersibility of each mixture was observed, as well as the tendency to "float out" upon standing overnight. Additionally, the redispersibility of the condimental composition was tested after "float out". The mixtures were prepared and tested according to the procedure in Example A. The results are summarized in Table C.

EXAMPLE F. Ratios of the dispersing agents to condiments.

25 In this experiment, vegetable oil\* and tartaric acid ester\*\* in a 1:1 ratio were combined in varying ratios with oleoresin paprika, oleoresin cinnamon and a basil mixture comprising basil oil and oleoresin basil.

30 The dispersibility of each mixture was observed, as well as the tendency to "float out" upon standing for 24 hours. Additionally, the redispersibility of the condimental composition was tested after "float out". The mixtures were prepared and tested according to the procedure in Example A. The results are summarized in Table B.

5        EXAMPLE G. Ratios of the dispersing agents to  
condiments.

In this experiment, vegetable oil\* and tartaric acid ester\*\* in a 1:1 ratio were combined in varying ratios with oleoresin black pepper.

10       The dispersibility of each mixture was observed, as well as the tendency to "float out" upon standing for 24 hours. Additionally, the redispersibility of the condimental composition was tested after "float out". The mixtures were prepared and tested according to the procedure in Example A. The results are summarized in Table D.

EXAMPLE H. Lard and Tartaric Acid Esters.

20       A mixture of 40% lard, 40% tartaric acid esters\*\*, and 20% of a basil mixture comprising basil oil and oleoresin basil was prepared. Initially, the lard was heated to above its melting point and combined with the tartaric acid esters\*\* and basil mixture. The resulting mixture remained a liquid upon return to room temperature. This mixture readily dispersed in water according to the procedure of Example A. Upon standing, some separation occurred but was easily redispersed with mixing.

30       EXAMPLE I. Lard and Tartaric Acid Esters.

35       A mixture of 45% lard, 45% tartaric acid esters\*\*, and 10% oleoresin black pepper was prepared. Initially, the lard was heated to above its melting point and combined with the tartaric acid esters\*\* and oleoresin black pepper. The resulting mixture remained a liquid

5 upon return to room temperature. This mixture readily dispersed in water according to the procedure of Example A. Upon standing, some separation occurred but was easily redispersed with mixing.

10 EXAMPLE J. Butter and Tartaric Acid Esters.

A mixture of 45% butter, 45% tartaric acid esters\*\*, and 10% oleoresin paprika was prepared and tested according to the procedure of Example E. At room temperature the mixture remained a liquid. The mixture  
15 readily dispersed in water, however, it appeared that some of the mixture precipitated out and was not redispersible.

20 EXAMPLE K. Butter and Tartaric Acid Esters.

A mixture of 45% butter, 45% tartaric acid esters\*\*, and 10% oleoresin black pepper was prepared and tested according to the procedure of Example E. At room temperature the mixture remained a liquid. The mixture  
25 readily dispersed in water, however, it appeared that some of the mixture precipitated out and was not redispersible.

EXAMPLE L. Coconut Fat and Tartaric Acid Esters

A mixture of 40% coconut fat, 40% tartaric acid esters\*\* and 20% of a cinnamon mixture comprising cinnamon oil and oleoresin cinnamon was prepared and tested according to the procedure of Example  
30 E. At room temperature the mixture remained a liquid. This mixture readily dispersed in water. Upon standing, some separation occurred but was readily redispersible  
35 with agitation.

5        EXAMPLE M. Coconut Fat and Tartaric Acid Esters.

A mixture of 45% coconut fat, 45% tartaric acid esters\*\* and 10% oleoresin black pepper was prepared and tested according to the procedure of Example E. At room temperature the mixture remained a liquid.  
10 This mixture readily dispersed in water. Upon standing, some separation occurred but was readily redispersible with agitation.

15        EXAMPLE N. Soybean Oil and Tartaric Acid Esters.

A mixture of 40% soybean oil, 40% tartaric acid ester\*\* and 20% of a celery mixture comprising celery oil and oleoresin celery was prepared and tested according to Example A. This mixture readily dispersed in water. Upon standing, some separation occurred  
20 but was readily redispersible with agitation.

EXAMPLE O. Soybean Oil and Tartaric Acid Esters.

A mixture of 40% soybean oil, 40% tartaric acid ester\*\* and 20% of a basil mixture comprising basil  
25 oil and oleoresin basil was prepared and tested according to Example A. This mixture readily dispersed in water. Upon standing, some separation occurred but was readily redispersible with agitation.

30

EXAMPLE P. Dispersibility in Brine Solution.

A mixture of 45% vegetable oil\*, 45% tartaric acid esters\*\* and 10% of a celery mixture comprising celery oil and oleoresin celery was prepared according to  
35 the procedure of Example A. One gram of such mixture was added to and readily dispersed in 100cc of a 10% brine solution (NaCl). Upon standing, a slight separation of the mixture was observed, but was readily redispersible with agitation.

5        EXAMPLE Q.    Dispersibility in Brine Solution.

          A mixture of 40% vegetable oil\*, 40% tartaric acid  
          esters\*\* and 20% oleoresin black pepper was prepared  
          according to the procedure of Example A. One gram  
          of such mixture was added to and readily dispersed  
10        in 100cc of a 10% brine solution (NaCl). Upon standing,  
          a slight separation of the mixture was observed,  
          but was readily redispersible with agitation.

EXAMPLE R.    Dispersibility in Sugar.

15        A mixture of 50% soybean oil, 40% tartaric acid  
          esters\*\* and 20% of a cinnamon mixture comprising  
          cinnamon oil and oleoresin cinnamon mixture comprising  
          cinnamon oil and oleoresin cinnamon was prepared  
          according to the procedure of Example A. One gram  
20        of such mixture was added to and readily dispersible  
          in 100cc of a 10% sugar-water solution (sucrose).  
          Upon standing, a slight separation of the mixture  
          was observed but was readily redispersible with  
          agitation.

25

EXAMPLE S.    Vegetable Oil and Tartaric Acid Esters.

          A mixture of 45% vegetable oil\*, 45% Myvatem(TM)  
          and 10% oleoresin mace was prepared and tested according  
          to the procedure of Example A. The mixture readily  
30        dispersed in water. Upon standing, some separation  
          was observed but was readily redispersible with agitation.

          The previous examples have limited themselves to  
          the use of natural flavorings. This invention, however,  
35        encompasses all condiments, whether they be natural  
          or synthetic. For example, synthetic capsanthin,  
          lycopene, or beta-apo-8 carotenal can be substituted  
          for the oleoresin paprika in the above examples,

5 in the manner known to the art for matching tinctorial  
power. Synthetic beta-carotene can be substituted  
for an extract of annatto, in which the predominant  
pigment is bixin or, if saponified, norbixin. Synthetic  
cinnamon can be substituted for oleoresin cinnamon,  
10 vanillin for vanilla extract, and so on. A more  
complete list of flavors which may be present includes  
dill, garlic, ginger, clove, bay, pimento, cassia,  
caraway, capsicum, celery, coriander, nutmeg, paprika,  
black pepper, mustard, marjoram, thyme, sage, basil,  
15 spearmint, peppermint, lemon, orange, and tarragon,  
inter alia.

One versed in the art will discern that this invention  
applies to any condiment, whether it be natural or  
synthetic, a flavor or a color, a single substance  
20 or a mixture of substances.

#### Examples Providing Detailed Description of the Application of the Composition of this Invention

25 The following examples describe the application  
of this invention. When not noted otherwise, the  
"w/o flavor" consists of specific oleoresins or oleoresins  
in combination with the essential oil of such oleoresin.  
In all cases, the weight ratio of vegetable oil\*  
30 to tartaric acid esters\*\* was about 1:1. The weight  
ratio of vegetable oil\* plus tartaric acid esters\*\*  
to condiments ranged between about 6:5 to about 99:1.  
The w/o flavors were stable against precipitation  
and development of rancidity.

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5 1. Marinara Sauce

The marinara sauce was prepared according to the following recipe:

	<u>Ingredients</u>	<u>Wt. %</u>
	Water	28.790
10	Citric acid, 50% solution	0.120
	Sugar, granulated	2.000
	Salt	1.200
	Kelcoloid S-	0.200
	Corn oil	1.900
15	Tomato puree,	65.700
	Onion w/o Flavor	0.020
	Garlic w/o Flavor	0.010
	Black Pepper w/o Flavor	0.030
	Basil w/o Flavor	0.015
20	Origanum w/o Flavor	<u>0.015</u>
		100.000

The sugar, salt and Kelcoloids were dry mixed. The dry mix was dispersed in the water and citric acid solution under continuous agitation. The remainder of the ingredients were added and mixed well. This mixture was brought to a boil and simmered for 5 minutes. The resultant marinara sauce was then hot packed in jars.

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2. Seasoned Pork Sausage

The seasoned pork sausage was made according to the following recipe:

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5	<u>Ingredients</u>	<u>Wt. %</u>
	Pork mixture (containing 90% ground	
	lean pork and 10% cubed pork fat)	96.808
	Salt	1.250
	Vinegar, white, 50 grain	1.000
10	Sugar, superfine	0.750
	Sodium nitrite	0.020
	Sage w/o Flavor	0.008
	Black Pepper w/o Flavor	0.100
	Onion w/o Flavor	0.036
15	Clove w/o Flavor	0.012
	Nutmeg w/o Flavor	0.008
	Mace w/o Flavor	0.008
		100.000

All ingredients were combined and mixed well.

20 The mixture was then fed into pork casings and tied intermittently and at both ends with threads. The resultant seasoned pork sausage was aged overnight at refrigeration temperature.

### 25 3. Oriental Oil-Vinegar Salad Dressing

The oriental oil-vinegar salad dressing was prepared according to the following recipe:

	<u>Ingredients</u>	<u>Wt. %</u>
	Sesame oil	53.995
30	Vinegar, 50 grain	29.000
	Soy sauce	10.000
	Water	6.000
	Lemon Flavor	0.030
	Scallions 1/8", freeze dried	0.100
35	Salt	0.260
	Xanthum gum	0.250



5	Mono-sodium glutamate	0.210
	Propylene glycol alginate	0.100
	Garlic w/o Flavor	0.005
	Ginger w/o Flavor	<u>0.050</u>
		100.000

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All the powder ingredients were dry blended and then added to water under vigorous agitation. The soy sauce, lemon flavor, vinegar and w/o flavors were added to the mixture. The gums were dispersed in the sesame oil and added under agitation to the aqueous phase. The scallions were then added and the resultant oriental oil-vinegar salad dressing was refrigerated. The w/o flavors imparted flavor to both the oil and aqueous phases of the salad dressing. Such a distribution of w/o flavor between the oil and water phases is one of the purposes of this invention. The utility of this aspect of the invention is considerable, as will be apparent to a food technologist.

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#### 4. Minestrone Soup

The minestrone soup was prepared according to the following recipe:

	<u>Ingredients</u>	<u>Wt. %</u>
30	Water	51.650
	Potatoes, diced	9.900
	Zucchini, cut	8.970
	Kidney beans cooked	8.330
	Cabbage, shredded	5.000
35	Lima beans, green, cooked	4.210

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5	Macaroni, elbow, dried	3.670
	Carrot, diced	3.530
	Tomato Paste	2.450
	Salt Pork	1.900
	Salt	0.250
10	Parsley, minced	0.100
	Black Pepper w/o Flavor	0.010
	Celery w/o Flavor	0.005
	Origanum w/o Flavor	0.004
	Basil w/o Flavor	0.006
15	Garlic w/o Flavor	0.005
	Onion w/o Flavor	0.010
		<u>100.000</u>

20 The salt pork, parsley and water were combined and heated for about 10 minutes. The tomato paste was added and the mixture was cooked for 15 minutes. The cabbage was then added and the mixture was cooked for another 10 minutes. The beans were added and the mixture was brought to a boil. Upon reaching

25 boil, the macaroni and salt were added and the mixture was cooked until the macaroni was tender. The w/o flavors were then added and the resultant minestrone soup was hot packed into jars and retorted at 250° for 15 minutes.

### 30 5. Creamy Italian Dressing

The creamy italian dressing was prepared according to the following recipe:

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5	<u>Ingredients</u>	<u>Wt. %</u>
	Corn oil	47.975
	Water	37.480
	Vinegar, 100 grain	6.000
	Sour cream powder	4.000
10	Sugar, superfine	1.000
	Salt	1.000
	Cultured non-fat milk solids	1.000
	Egg yolk solids	0.500
	Polysorbate 60	0.400
15	Xanthum gum	0.250
	Parsley flakes	0.200
	Propylene glycol alginate	0.100
	Basil w/o Flavor	0.030
	Black Pepper w/o Flavor	0.030
20	Origanum w/o Flavor	0.020
	Garlic w/o Flavor	0.010
	Onion w/o Flavor	0.005
		100.000

25        The water, vinegar and w/o flavors were combined and mixed. The gums were dispersed in the corn oil and added to the aqueous mixture under agitation. The dry ingredients were then added and the entire mixture was homogenized for about 5 minutes. The

30        parsley flakes were then mixed in and the resultant creamy Italian dressing was refrigerated.

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## 6. Beverages and Juices

As pointed out in the prior description of the invention, the "w/o flavors" are not water soluble, but rather are only water dispersible. Upon standing in water alone, they will tend to separate. This is particularly true if the "w/o flavor" contains oleoresins which contain large amounts of vegetable oils. However, this invention provides such a fine dispersion of the oleoresins that they may be used to flavor and color beverages, including juices, containing sufficient suspended matter (cloud or fibers) to absorb the dispersed "w/o flavor". A spiced tomato juice drink was prepared according to the following recipe:

20	<u>Ingredients</u>	<u>Wt. %</u>
	Tomato Juice, no additives	98.955
	Salt, granulated	1.000
	Debittered celery w/o flavor	0.040
25	Black pepper w/o flavor	0.005
		<u>100.000</u>

All ingredients were combined and mixed well. The resultant spiced tomato juice drink can be pasteurized (195°F for 30 seconds) and packed into a suitable container. Neither the debittered celery nor black pepper w/o flavor were observed to separate from the juice.

It is to be understood that the invention is not to be limited to the exact details of operation or exact compounds, compositions, methods, or procedures shown and described, as obvious modifications and equivalents will be apparent to one skilled in the art.

TABLE A

Effect of varying ratios of tartaric acid esters and vegetable oils upon the dispersibility and stability of oleoresin paprika, oleoresin cinnamon and basil mixture

Solvent, %	Dispersibility			Stability		
	Cinnamon	Paprika	Basil	Cinnamon	Paprika	Basil
0	Incomplete	Incomplete	Incomplete	floats	floats	floats
10	Incomplete	Incomplete	Improved, but poor	floats	floats	oil layer, redispersible
20	disperses	Incomplete	disperses	layers, easily redispersible	semi-floats	oil layer, redispersible
30	disperses	disperses	disperses	layers, easily redispersible	some separation, redispersible	redispersible
40	disperses	disperses	disperses	slight float, redispersible	slight float, redispersible	slight float, redispersible
50	disperses	disperses	disperses	slight float, redispersible	slight float, redispersible	slight float, redispersible
60	disperses	disperses	disperses	slight float, redispersible	slight float, easily redispersible	slight float, redispersible
70	disperses	poor dispersion	disperses	layers, redispersible	some separation, easily redispersible	slight float, redispersible
80	disperses	Incomplete	poorly dispersed	layers on bottom, redispersible	separation on bottom, easily redispersible	layers on bottom, redispersible
90	disperses	Incomplete	partially dispersed	layers on bottom, redispersible	separation on bottom, easily redispersible	layers on bottom, redispersible
100	Incomplete	Incomplete	very poorly dispersed	layers on bottom, poor redispersibility	separation on bottom, easily redispersible	very poorly redispersible

TABLE B  
Effect of varying the ratio of dispersing agents to condiments  
upon the dispersibility of oleoresin paprika,  
oleoresin cinnamon and basil mixture.

Solvent	Condiment	Dispersibility			Stability		
		Cinnamon	Paprika	Basil	Cinnamon	Paprika	Basil
10	90	slight dispersion	partial dispersion	poor dispersion	floats, no redispersion	layered redispersible	float, poor redispersion
20	80	unproved, poor dispersion	dispersible/some float	poor dispersion	floats, slight redispersion	layered, redispersible	float, poor redispersion
30	70	dispersion	dispersible/some float	poor dispersion	floats, spoon redispersibility	slight float, redispersible	layered, redispersible
40	60	layers, some dispersion	disperses	poor dispersion	some separation, redispersible	slight float, redispersible	layered, redispersible
50	50	layers, some dispersion	disperses	fair dispersion	some separation, redispersible	slight float, redispersible	layered, redispersible
60	40	dispersible	disperses	fair dispersion	some separation, redispersible	slight float, easily redispersed	slight layering, easily redispersed
70	30	dispersible	disperses	good dispersion	slight float, easily redispersed	slight float, easily redispersed	slight layering, easily redispersed
80	20	dispersible	disperses	good dispersion	slight float, easily redispersed	slight float, easily redispersed	slight layering, easily redispersed
90	10	dispersible	disperses	good dispersion	slight float, easily redispersed	slight float, easily redispersed	slight layering, easily redispersed

Table C

Effect of varying ratios of tartaric acid esters\*\* and vegetable oil\* upon the dispersibility and stability of oleoresin black pepper

Solvent, % Ester	V.O.	Dispersibility	Stability
0	100	no dispersion	sample floats
10	90	incomplete dispersibility	sample floats out, not redispersible
20	80	incomplete dispersibility	sample floats out, not redispersible
30	70	complete dispersibility	some layering, com- pletely redispersible
40	60	complete dispersibility	some layering, com- pletely redispersible
50	50	complete dispersibility	some layering, com- pletely redispersible
60	40	complete dispersibility	some layering, com- pletely redispersible
70	30	complete dispersibility	some layering, com- pletely redispersible
80	20	complete dispersibility	separation on bottom, redispersible
90	10	incomplete dispersibility	separation on bottom, redispersible
100	0	very poor dispersion	separation on bottom, not redispersible

Table D

Effect of varying the ratio of dispersing agents to condiments upon the dispersibility of oleoresin black pepper.

% Solvent	% Condiment	Dispersibility	Stability
10	90	very poor dispersion	sample floats, not redispersible
80	20	poor dispersion	sample floats, not redispersible
70	30	poor dispersion	sample floats, not redispersible
60	40	incomplete dispersion	some float, redispersible
50	50	incomplete dispersion	some separation, easily redispersible
40	60	complete dispersion	some separation, easily redispersible
30	70	complete dispersion	some separation, easily redispersible
20	80	complete dispersion	good dispersion
10	90	complete dispersion	good dispersion



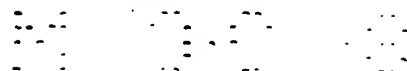
C L A I M S

1. An edible composition useful as a dispersing agent for oil and water or aqueous solutions, such as for the preparation of oil-in-water or water-in-oil dispersions, consisting essentially of a tartaric acid ester and an edible fat or oil, said edible fat or oil being miscible in said tartaric acid ester.
2. A composition in accordance with Claim 1 wherein said tartaric acid ester is an ester of mono- and diglycerides.
3. A composition in accordance with Claim 1 or 2 wherein said tartaric acid ester is a diacetyl tartaric acid ester of a monoglyceride.
4. A composition in accordance with Claim 1 wherein said ester and said edible fat or oil are present in the weight ratio from about 2:3 to about 3:2, preferably of about 1:1.
5. A composition in accordance with Claim 1 wherein said tartaric acid ester is obtained by the esterification reaction of tartaric acid, acetic acid and citric acid with a distilled monoglyceride.
6. A composition in accordance with Claim 1 wherein said tartaric acid ester contains one or more acetate moieties in addition to the tartarate moiety.

7. A composition in accordance with Claim 1 wherein said edible fat or oil is of animal or vegetable or plant origin.
8. A composition in accordance with Claim 7 wherein said edible fat is selected from the group consisting of milk fat, including butter fat, cocoa butter, lard, tallow and other animal depot fats.
9. A composition in accordance with Claim 7 wherein said edible oil is selected from almond oil, coconut oil, corn oil, cottonseed oil, lard oil, olive oil, palm oil, peanut oil, safflower oil, sesame oil, soybean oil and sunflower oil.
10. A homogenous liquid oleoresin composition consisting essentially of:
- (1) tartaric acid esters of mono and diglycerides;
  - (2) an edible fat or oil or mixtures thereof, wherein such edible fat or oil is miscible in (1); and
  - (3) one or more condiments selected from edible flavorings and edible colorings, but when one such condiment is oleoresin black pepper, benzyl alcohol is present in a weight ratio of benzyl alcohol to oleoresin black pepper of at least about 2:3, wherein the weight ratio of (1) plus (2) to (3) is at least about 1:9.
11. The composition of Claim 10, wherein the weight ratio of (1) plus (2) to (3) is between about 1:9 and about 99:1, preferably between about 1:9 and about 9:1 and most preferably between about 3:7 and about 7:3.

12. The composition of Claim 10, wherein the weight ratio of (1) to (2) is between about 1:4 and about 4:1, preferably between about 2:3 and about 3:2, most preferably about 1:1.
13. The composition of Claim 10, wherein the weight ratio of benzyl alcohol to oleoresin black pepper is between about 2:3 and about 3:2, preferably between about 9:11 and about 11:9, most preferably about 1:1.
14. The composition of Claim 10, wherein the condiment portion (3) comprises at least one condiment selected from the group consisting of (a) spice oleoresins, (b) essential oils, and (c) edible colorings.
15. Composition of claim 1, where (1), (2) and (3) are present in a weight ratio of about 1:1:0.5, respectively.
16. A homogenous liquid condimental composition consisting essentially of:
  - (1) tartaric acid esters of mono and diglycerides;
  - (2) an edible fat or oil or mixtures thereof, wherein such edible fat or oil is miscible in (1); and
  - (3) one or more condiments selected from edible flavoring and edible colorings, but when one such condiment is oleoresin black pepper, benzyl alcohol is present in a weight ratio of benzyl alcohol to oleoresin black pepper of between about 2:3 and about 3:2.

- 5            wherein the weight ratio of (1) plus (2) to  
             (3) is between about 1:9 and about 99:1 and  
             the weight ratio of (1) to (2) is between about  
             1:4 and about 4:1.
- 10        17. A homogenous liquid condimental composition  
             consisting essentially of:  
             (1) tartaric acid esters of mono and diglycerides;  
             (2) an edible fat or oil or mixtures thereof,  
                 wherein such edible fat or oil is miscible  
                 in (1); and  
15        (3) one or more condiments selected from edible  
                 flavoring and edible colorings but when  
                 one such condiment is oleoresin black pepper,  
                 benzyl alcohol is present in a weight ratio  
20        of benzyl alcohol to oleoresin black pepper  
             of between about 9:11 and about 11:9,  
             wherein the weight ratio of (1) plus (2) to  
             (3) is between about 1:9 and about 9:1 and the  
             weight ratio of (1) to (2) is between about  
             2:3 and about 3:2.
- 25        18. A homogenous liquid condimental composition  
             consisting essentially of:  
             (1) tartaric acid esters of mono and diglycerides;  
             (2) an edible fat or oil or mixtures thereof,  
                 wherein such edible fat or oil is miscible  
30        in (1); and  
             (3) one or more condiments selected from edible  
                 flavorings and edible colorings, but when  
                 one such condiment is oleoresin black pepper,  
                 benzyl alcohol is present in a weight ratio  
35        of benzyl alcohol to oleoresin black pepper  
             of about 1:1,



5            wherein the weight ratio of (1) plus (2) to  
             (3) is between about 3:7 and about 7:3 and the  
             weight ratio of (1) to (2) is about 1:1.

19. A food seasoned, flavored or colored with a  
condimental composition according to claim 1.

10        20. A beverage seasoned, flavored or colored with  
             a condimental composition according to claim 1.

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European Patent  
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## EUROPEAN SEARCH REPORT

Application number

EP 86 10 5960

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.4)
X	EP-A-0 137 082 (McCORMICK & CO.)  * page 4, lines 9-29, page 5, lines 28-33, page 7, lines 4-24 *	1,2,7, 9,10, 14,16, 17-20	A 23 L 1/22 A 23 L 1/221
D,A	US-A-4 285 981 (P.H. TODD et al.) * claims 1-12 *	1,2,10	
D,A	US-A-3 906 116 (P.G. QUESNEL et al.) * claims 1-3, 11 *	1,7,9	
A	BE-A- 549 252 (SUNKIST GROWERS, INC.) * claims 1-4, 6 *	1,2,7, 10,16	TECHNICAL FIELDS SEARCHED (Int. Cl.4)
A	US-A-4 409 257 (G.D. DELINE)  * column 3, lines 4-65, claims 1-3 *	1,2,7, 10,14, 19,20	A 23 L 1/00
The present search report has been drawn up for all claims			
Place of search BERLIN		Date of completion of the search 25-07-1986	Examiner SCHULTZE D
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

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